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U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Re: Draft Underground Injection Control (UIC) Program Guidance on Transitioning Class II Wells to Class VI Wells – GS Rule Guidance Comments

The CCS Alliance submits the following comments regarding the Environmental Protection Agency's ("EPA") Draft Underground Injection Control (UIC) Program Guidance on Transitioning Class II Wells to Class VI Wells.

The CCS Alliance's purpose is to promote development of positions and policy by the private sector, states, the federal government, nongovernmental organizations, and others to appropriately address risks associated with the development and deployment of carbon capture and sequestration ("CCS") technologies. The CCS Alliance supports efforts to help ensure that these technologies are developed and widely, efficiently and cost-effectively deployed in furtherance of any greenhouse gas emissions reduction strategy implemented at the state, regional, or federal level.

I. Background

On December 10, 2010, the EPA issued its final rule establishing a new category of UIC well: the Class VI geologic sequestration well.[1] The final rule described this new class of wells as "wells that will be used to inject CO_2 into the subsurface for the purpose of long-term storage."[2] However, for many years CO_2 has been injected in oil wells in the U.S. to conduct enhanced oil recovery (EOR), without harmful consequence to underground sources of drinking water (USDWs). EPA needed to take account of EOR, a longstanding industry practice whose proven environmental track record demonstrated that additional regulation was unnecessary.

[1] 75 FR 77230.

[2] Id, at 77230.

EPA resolved this issue by stating that "Traditional [EOR] projects are not impacted by this rulemaking and will continue operating under Class II permitting requirements."[3] However, it also stated that "Class VI requirements apply to any CO2 injection project (regardless of formation type) when there is an increased risk to USDWs as compared to traditional Class II operations using CO_2."[4]

The final Class VI rule proposed that "Owners or operators that are injecting carbon dioxide for the purpose of long-term storage into an oil and gas reservoir must apply for and obtain a Class VI geologic sequestration permit when there is an increased risk to USDWs compared to Class II operations."[5] The rule requires the director to determine when there is an increased risk to USDWs by evaluating nine factors, including whether the reservoir pressure or the rate of injection has increased; whether the oil production rate has decreased; the source and properties of the injected CO_2; quality of abandoned well plugs in the area; and "[a]ny additional site-specific factors as determined by the Director."[6]

The final rule was criticized because some of these factors are quite amorphous and subject to a broad range of interpretations. But perhaps the most compelling concern with EPA's chosen regulatory structure is that the notion of an oilfield operation being converted into a facility whose primary purpose is sequestration of CO_2 is inconsistent with Class II permitting, and likely also with contracts with property owners and with State law regarding resource recovery.

Commenters asked EPA to clarify how the agency intended that the nine factors be applied. In response, EPA has issued the draft Class II - Class VI transition guidance document.

II. Transition Decision Maker

EPA has proposed in the guidance document that the Class VI program director determine when a well must transition from Class II regulation to Class VI regulation. The fact that a Class VI regulator who may have no experience with oil field operations could decide at an unknown point, based on broad interpretive latitude, that a producing oil well poses increased risk to USDWs, notwithstanding a long and environmentally safe history of oilfield CO_2 injections, introduces a new risk to the business that could deter EOR. This is neither logical nor legal. The Class II regulator, not the Class VI regulator, should determine when a well should transition to Class VI regulation, for two compelling reasons.

First, the Class II regulator is in a much better position to determine whether there is an "increased risk" compared to Class II operations, because the Class II regulator is the one with

[3] Id, at 77245.

[4] Id.

[5] Id, at 77288.

[6] Id.

experience with Class II operations. Doctors all have medical training, but by what rationale would you make a veterinarian your first choice for a routine check-up? The analogy is best made to a veterinarian fresh out of school, as Class VI regulators have yet to see a single "patient" since there are no Class VI wells. The Class II regulator is familiar with the baseline risks at Class II facilities and is already responsible for reviewing and regulating pressures and other factors to ensure that fluid movements do not endanger USDWs, and thus is in a far better position to determine when a regulatory transition would be appropriate. It cannot be assumed that Class II regulators will be the regulators for Class VI wells. Different State agencies regulate different well classes. Furthermore, today, more than three years after the Class VI well regulations were adopted, only one State has applied for Class VI primacy, and none has been granted it.

Second, having the Class VI regulator determine when a Class II well no longer qualifies for Class II regulatory treatment is at odds with delegation of primacy to the Class II regulator, which universally in an oil and gas producing State is a State regulator. Placing the transition issue in the hands of the Class VI regulator, which at present is the EPA in all States, is a selective, case-by-case removal of a primacy delegation in contravention of law. Paragraph (b)(3) of section 1421 of the Safe Drinking Water Act states the following:

> "If the Administrator approves the State's program under paragraph (2), the State shall have primary enforcement responsibility for underground water sources until such time as the Administrator determines, by rule, that such State no longer meets the requirements [necessary to obtain primacy]."

EPA has made no such finding, by rule or otherwise. This issue is at the heart of the class transition problem, and EPA needs to resolve it.

III. Need for EOR as an Option for CO2 Injections

At present CCS is too costly to be commercially viable absent government funding. Even if costs are reduced over time, EOR will be a necessary component of geologic sequestration for the foreseeable future, because it uses well-known and characterized geologic strata, offers a much smaller project footprint (as the increased pressure of CO_2 injections in "occupied" formations leads to a larger plume), and provides an additional revenue stream for project developers. EPA acknowledges as much in its proposed new source performance standard rule for new fossil-fueled electric generating units:

> The EPA anticipates that many early geologic sequestration projects may be sited in active or depleted oil and gas reservoirs because these formations have been previously well characterized for hydrocarbon recovery, likely already have suitable infrastructure (e.g., wells, pipelines, etc.), and have an associated economic benefit of oil production. . . . CCS projects associated with large point sources are occurring due to a demand for CO_2 by EOR operations. . . . The use of CO_2 for EOR can significantly lower the net cost of CCS. The opportunity to

sell the captured CO_2 for EOR, rather than paying directly for its long-term storage, improves the overall economics of the new generating unit.[7]

EPA's current CCS policies affecting EOR – including assigning in this proposed guidance the class transition issue to the Class VI regulator, and its proposal in the proposed GHG NSPS for new electric generating units to require GHG air emissions reporting from CO_2-EOR operations under Subpart RR rather than Subpart UU – will deter EOR by subjecting it to an unnecessarily costly and burdensome regulatory regime.

EOR is an activity the EPA has said it wants to support as an important facilitating factor in the development of CCS. The agency's policies need to match this expressed desire, and certainly must not contradict it.

IV. Economics of EOR versus Saline Storage

CCS at present involves substantial additional cost in comparison with a fossil-fueled power plant without CCS. At a hearing of the Subcommittee on Oversight and Investigations of the House Energy & Commerce Committee on February 11, Deputy Assistant Secretary of Energy for Clean Coal Dr. Julio Friedmann testified that while costs will vary based on each facility, the type of technology deployed, and the type of coal used, first-generation CCS will cost $70 to $90 per ton of CO_2 removed, for an increase of 70% to 80% in the cost of electricity.

EOR can substantially reduce the cost of capturing and sequestering CO_2. Benefits of EOR to CO_2 producers depend on the amount the offtaker is willing to pay, and thus are site specific. However, estimates range from $15-30 per ton delivered to the oil fields under pressure – not an amount sufficient to equal the cost of capture, but a significant revenue stream to defray those costs.[8]

These figures support the point that EOR is the rational path for the offtake of large volumes of CO_2, at least for the foreseeable term. Regulatory development must not hamper the EOR opportunity.

V. Recommendations

We recommend addressing the key issue posed by the Class II to Class VI transition issue – which regulator makes the decision – by revising the guidance to make clear that the Class II regulator shall make the determination of when the risks to USDWs warrant a transition from one regulatory class to another.

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[7] Standards of Performance for Greenhouse Gas Emissions From New Stationary Sources: Electric Generating Units; Proposed Rule, 79 FR 1430, at 1474, January 8, 2014.

[8] "Enhanced Oil Recovery & CCS," p. 6, L.D. Carter, U.S. Carbon Sequestration Council, January 14, 2011.

Sincerely,

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